

QIBA Lung Density Biomarker Committee (BC)

Wednesday, July 26, 2023, 2 PM CT

Call Summary

In attendance

Charles Hatt, PhD (Co-Chair)

Miranda Kirby, PhD (Co-Chair)

Gonzalo Vegas Sánchez-Ferrero, PhD, MSc (Co-Chair)

Rachel Eddy, PhD

Sean B. Fain, PhD

Mathis Konrad, MSc

John Memarian, MSc

Nancy Obuchowski, PhD

Gudrun Zahlmann, PhD

RSNA

Julie Lisiecki

Moderator: Dr. Hatt

Agenda items:

- QIBA transition
- CT Lung Density BC next steps

QIBA Transition

- New RSNA committee, the Quantitative Imaging Committee (QUIC) will assume oversight of RSNA's quantitative imaging initiatives
- QIBA BCs and standing committees will be dissolved in ~5 months
- In-process Profiles to be advanced to nearest stage and/or summary or white paper of the Profile to be published
- QUIC may initially focus on 1-3 QIBs
- Feasible BC deliverables need to be determined for 5-month window
- [QIBA Wiki](#) will continue to be accessible post-transition
- BC members welcome to submit comments / questions re: transition: [Future Direction of QIBA Activities Form](#)

Software Comparison Challenge Update:

- Four people have signed up for the COPDGene sub study, though more are needed
- Dr. Kirby would like to proceed with the challenge to utilize staff support in the next 5 months, including:
 - recruitment of more participants
 - getting data transfer agreements signed
 - anonymization of participant IDs
 - collecting anonymized data sheets
 - Analysis and manuscript would be done independently

Next Steps

- Drs. Fain and Hatt to work on streamlining the Lung Density Profile and making it more user-friendly
- Dr. Hatt to continue collecting actor feedback for 3 different actors for the Lung Density Profile Checklist in efforts to reach Stage 3
 - It is approximately 1/3 complete
 - Have site feedback from National Jewish and Brigham
 - Have radiologist feedback from Drs. Lynch and Newell
- Dr. Kirby to continue with the reproducibility for gas trapping study; may extend future scope to look at airways and vessels
- Dr. Fain to consider a paper on metaanalysis comparison of the older and newer protocols that have been used for density measurements
 - Paper to reinforce Profile usefulness/availability and provide a benchmark for current performance
- BC members would like to continue having meetings in their usual time slot after staff support ends

Comments

- There was a missed opportunity regarding the connection of AI to QI at the last RSNA meeting
- Rigorous validation of the biomarker that the AI is enabling is an important component of testing the software products being marketed

- Dr. Zahlmann mentioned that QIBA has been actively promoting the relationship of QI for AI and AI for QI, notably [Dr. Chung's presentation for RSNA 2022](#)

Previous action items (please strike if complete):

- [Dr. Hatt](#) to follow up with [Dr. Kim](#) from Medical IP (AI solutions)
 - [Dr. Vegas Sánchez-Ferrero](#) to follow up with [Dr. Abadi](#) offline re: modeling for gas-trapping
 - [Dr. Hatt](#) to share the streamlined checklists for the lung density / emphysema Profile with BC members
 - [Dr. Hatt](#) received feedback from Dr. Lynch re: the Radiologist portion of the checklist and will solicit input from Drs. Kazerooni and Newell
 - [Dr. Hatt](#) to look into existing studies (e.g., spiromics, etc.) that might be compatible with the Lung Density Profile to aid with reaching Technical Confirmation and validating the algorithms used
 - Plan to replicate software comparison study with gas-trapping Profile
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- [Mr. Avila](#) to follow up with Dr. Noël offline to discuss reproducibility and replication of 3-D printed phantoms
 - [Drs. Hatt, Mulshine,](#) and [Mr. Avila](#) to discuss a proposed combined Claim Confirmed (Stage 4) study with lung density and small lung nodule
 - [Dr. Fain](#) to follow up with a colleague, Alejandro C., regarding COPDGene papers, including FRC, Phase II, etc.
 - [Dr. Hatt](#) to ask Dr. Newell re: spiromics data ancillary studies once paper has been published
 - Volunteers needed to assist Dr. Vegas-Sánchez-Ferrero with segmentation work
 - [RSNA staff](#) suggest contacting [Dr. Hoppel](#) re: the multi-site Lung Density “road trip” experiment data
 - Standardized naming of actors across QIBA Profiles (medical physicist or image analysis core, TBD)
 - Exploration of cross-sectional claim instead of longitudinal for gas-trapping Profile

Next meeting: August 23, 2023

References: [Profile Stages page](#) | [Technical Confirmation Process](#) | streamlined Profile [conformance checklist](#)

- [Notes](#) posted to the [Lung Density BC QIBA wiki page](#) can be referenced for detailed descriptions of biomarkers
- Link to [Air-trapping Profile](#)